The actors that shape the knowledge, attitudes and behaviour of Maltese youth

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Abstract

Not much is known about the environmental knowledge, attitudes and actions of young people in the Maltese islands. The main actors that are responsible for the acquisition and development of environmental perspectives in young people in Malta are also not well known. There is as yet, little understanding of the extent to which these actors are fostering a sense of environmental responsibility and a greater commitment towards sustainable development.

A mixed method research methodology was employed to address this knowledge gap that included an extended questionnaire distributed to students in the post secondary age range and a number of focus groups to provide a more in-depth study of some of the issues arising from the questionnaire analyses. The focus groups allowed young people to frame their responses in their own words. This paper focuses on the results of the quantitative study.

The data from the quantitative analyses indicates that students are more knowledgeable about the Global Environment than about the Local Environment, and that students receive most information from School, Television and the Internet. The sources of environmental information which were perceived by young people as being the most reliable included School, Books and the Internet. The overall attitude of students towards the environment appears to be strongly positive, however students seem to perform little positive actions towards the environment. Year group, Age and Gender were found to have a statistically significant effect on knowledge; Father's work was found to have a statistically significant effect on attitude and Age was found to have a significant effect on behavior.

Background to the Study - The Maltese Context

The Maltese islands are a small archipelago, situated in the centre of the Mediterranean some 96km south of Sicily and 290km north of the coast of Libya. The Maltese archipelago comprises three inhabited islands; Malta, Gozo and Comino, together with a number of uninhabited smaller islands.

The most serious environmental problems arise from the fact that Malta is one of the smallest states in the world, with an area of 316km^2, and one of the most densely populated. The population density stands at more than 1200 persons/square kilometre. The high population density is augmented further by high tourist arrivals of about 1.2 million yearly (Mallia *et al.*, 2002). The main environmental issues on the island include: waste production and management, reliance on fossil fuels for energy production, high private motor usage and freshwater production requiring a high energy input.

Introduction

The perception of environmental issues, as represented by the environmental actions, attitude and knowledge of young people is of great importance for a number of reasons:

- knowing what students think about environmental issues will help to establish better pro-environmental education among them (Pawlowski, 1996).

- the involvement of youth in environment and development decision-making and in the implementation of programmes is critical to the long-term success of Agenda 21 (UNCED 1992, Chapter 25).

- college students are an important segment of society and warrant attention in terms of studying environmental attitudes, as they have been the leading crusaders in the modern environmental movement. For example, the huge success of Earth Day 1970 in the USA was largely attributed to college students when approximately 1500 colleges participated in the campaign (Harper cited in Thapa, 2001).

- The Maltese National Youth Policy (Ministry of Education, 2004), states that the State should follow a policy that 'helps young people to take an active role in the protection and improvement of the environment for a sustainable future' and 'encourage young people to adopt a pro-environmental attitude'.

Research in the field of Youth Studies

There is a considerable body of literature relating to research on environmental knowledge and attitude. A lot of research has occurred on the primary and secondary school populations and also on the general population. However, much less emphasis has been placed on studies that concern post-compulsory education students in the 16-18 year range.

The majority of the studies that focus on post secondary education students in the 16-18 year range, used a quantitative technique to gather data (e.g. Barrett & Kuroda, 2002; Kaplowitz & Levine, 2005; Makki *et al*., 2003; Mogenson, & Nielsen, 2001; Tuncer *et al.,* 2005) . Few studies utilised a qualitative technique to gather data, Sivek (2002). The majority of studies reported a positive attitude towards the environment except a study by Gambro & Switzky (1996), and variety of levels of environmental knowledge. Other findings indicate poor knowledge of environmental issues, such as Kuhlemeier *et al.* (1999) and Gambro & Switzky (1999). The majority of the studies did not actually investigate whether youth had taken any actions in relation to the environment.

Few environmental knowledge and attitudes studies have been carried out in dense island communities (Volk & Cheak, 2003; Hsu, 2004; Hsu & Roth, 1996). These studies mainly used quantitative techniques to gather data. Only the Volk & Cheak (2003) study used a combination of qualitative and quantitative data gathering. The Hsu & Roth (1996) study assessed the environmental knowledge and attitudes of a different age group from the present study but included a variety of statistical analyses that indicated the significance of certain results. Although the level of environmental knowledge was generally high, relatively negative environmental attitudes were exhibited when the respondents believed that personal sacrifice might be required.

Outline of the Methodology

The methodology for this study included a mixed method approach employing a combination of empirical/analytical and hermeneutic/constructivist approaches. This complementary research activity

promotes a 'multiparadigm' research in which each methodological approach can contribute in meeting valid research goals of environmental education (Connell, 1997). The approach included analyses of the local social, cultural and environmental milieu in which environmental knowledge, attitudes and actions form. Data collection occurred through two different components – a class administered questionnaire survey and a focus group discussion with smaller groups of students to explore their feelings.

The extended questionnaire was constructed following the examination of other instruments in the literature (e.g. Barrett & Kuroda, 2002; Eagles & Demare, 1999; Gambro & Switzky, 1996, 1999; Hodgkinson & Innes, 2001; Kuhlemeier *et al*., 1999; Makki *et al.*, 2003; Mogenson & Nielsen, 2001; Fien, Yencken & Sykes, 2000; Pawlowski, 1996) and examined four areas of Environmental Knowledge, (Local issues, Global issues, Important Environmental terms and Information sources and their perceived reliability); Awareness of local and global environmental problems; Causes of environmental problems; Possible solutions to environmental issues; Thoughts and feelings about environmental issues and Personal actions in relation to environmental issues. The quantitative data from the extended questionnaire included 135 variables per individual. The questionnaire also obtained information on socio-demographic characteristics of youth. The questionnaire was piloted with students in the same sample population to rectify the wording of questions, the language and its meaning and the ordering of question sequences by listening to the concerns of youth.

The sample consisted of 447 individuals which afford a 95% confidence level of the population of youth attending postsecondary institutions in Malta. Stratified sampling was used within the studied colleges and schools to ensure that youth studying languages, sciences, business, and humanities were represented according to the actual percentages at the school level. The relatively large sample size provided more accuracy for subclass estimators and for differences between subclass estimators, through finer divisions of the subclasses. Kalton argues that the choice of sample size often depends on an assessment of the costs of increasing the sample compared with the possible benefits of more detailed analyses (Kalton, 1983). The sample in this study has been biased as much as possible towards detailed analyses and truthful representation without much consideration for the costs. This decision proved to be useful for the latter detailed analyses and generalisations of the results.

Results of the Findings from the Quantitative Analyses

The students understanding of the word environment was comprehensive, but showed a definitive bias towards the biological and physical perspectives. The main two words associated with the word environment are 'Nature' and 'Pollution'. The cultural and built environment were hardly mentioned. It seems that young people are aware of the physical and biological components, but do need a more holistic view of the environment that integrates the social component in order that people are a central component of this perspective (Posch, 1993).

- Knowledge

The study revealed that the students' general environmental knowledge in the Maltese Islands has a mean score of 12.14 out of a maximum of 24. A difference was noted between the four main areas. Students were most knowledgable in 'Global Issues' with a mean score of 3.35 out of a maximum score of 6. This was followed closely by Knowledge of Important Concepts with a mean score of 3.19, and further down by' Knowledge of local environmental issues with a mean score of 2.90. Students scored least in Knowledge of Local solutions with a mean of 2.69. The global environmental concept which was most correctly answered was 'the usefulness of the Ozone layer in absorbing harmful solar radiation' (72.5% correct), followed by the Greenhouse effect (69.6% correct). The students were least familiar with renewable resources (26% correct). Notwithstanding our climatic advantage to use solar radiation, the Maltese are still totally dependent on fossil fuels for the production of electricity and the production of freshwater from seawater. Students' knowledge on local environmental issues was at a lower level than that of global environmental issues. The majority of the responses were below the 60% level. The concept which was most correctly answered was fossil fuel combustion (61% correct), closely followed by local Biodiversity (58.4% correct) and Sewage management (57% correct).

- Environmental Information

Results show that students receive most information from School (65.3%), Television (48.3%) and the internet (43.8%). Conversely, students obtain the least amount of information from Government

agencies (10.1), Radio (10.1%) and Billboards (4.3%). The sources of environmental information which were perceived by young people as being the most reliable included School (56.2%), Books (47.4%) and the Internet 37.8%). On the other hand, Radio (14.1%), Billboards (13%) and Friends (7.6%) were thought to provide the most unreliable environmental information.

- Attitudes towards the Environment

The overall attitude of students towards the environment appears to be strongly positive with thirteen out of a possible fifteen statements receiving at least 50% positive replies.

The statement that received the highest amount of positive replies (92.4%) was that 'The Maltese public should be informed more on environmental issues through all types of media'. 92.2 % of the students were very much in favour of increased control of air pollution through the Maltese government. Other statements that scored highly on the attitude score include that 'The Maltese government should subsidise solar water heaters' (88.8%), 'Maltese people must do their utmost to preserve the remaining natural environments in Malta' (87.7%). 'The Maltese government should invest in green alternatives for energy production' (87.0%) and that 'There should be harsher penalties for individuals that dump waste in the natural environment in Malta' (85.4%).

- Actions towards the Environment

Generally, students seemed to perform little positive actions towards the environment with 14 out of a possible 15 statements receiving less than 50% positive replies. The statement that received the highest amount of positive replies (52.7%) was 'Taking a shower instead of a bath'. It seems that students do try to reduce water consumption by having showers, but it appears that they do so not only for environmental reasons. In fact only 37.2% of students make an effort to reduce water consumption for environmental reasons. Other reasons may include financial ones especially because of the relatively high price of water on the islands. Four actions were performed by less than 10% of the student population. These included: 'Taking part in clean up campaigns' (8%), 'Becoming a member of an environmental group' (6%), Taking part in environmental NGO activities (4.6%), Writing letters or attending a meeting with the aim of protecting the environment (3.9%).

Correlations

In this study, correlations were carried out to evaluate the different parameters of the questionnaire in order to find the degree of interactions, if any. More specifically, correlations were carried out with various types of demographic data. The following are a selection of some of the findings:

- Age and Year Effects

Combining the results from the questions which concerned the young people's total knowledge scores and the year group in which the young people were actually studying, it was revealed that the year in which young people are studying has a strong impact on their total knowledge score. The average score for 1st year students was 11.17 while the average score for 2nd year students was 12.99. This result was maybe somewhat expected and seems to indicate the positive effect further schooling has on garnering more environmental knowledge. The difference in the mean (average) knowledge score for 1st year and 2nd year students is 1.82 (12.99-11.17). The One-Way ANOVA test suggests that this difference is significant and is not attributed to chance since the p-value (approximately 0) is less than the 0.05 level of significance. The results reveal a noticeable trend of increasing positive total behaviour as the age of young people increases. The mean total behaviour scores increase from 39.17 for 15 year olds up till 46.18 for 19 year olds. The correlation demonstrates a significant relationship between the two factors since the p-value (approximately 0.19) is less than the 0.05 level of significance.

- Gender and Knowledge

The mean total knowledge score for females was 12.59, while the mean total knowledge score for males was 11.80. The correlation indicates a statistically significant relationship between gender and total knowledge score since the p-value (approximately 0.011) is less than the 0.05 level of significance, indicating that females performed better than males in the total knowledge questions

- Father's Work and Attitudes

The mean total attitude scores of young people with respect to their father's work varies from a minimum of 57.69 for those young people whose father does not work, to a maximum of 63.40 for those young people whose father is an unskilled worker. The descriptive results indicate a three level situation where the young people having unskilled father's have the highest positive attitude; young people having professional, skilled or clerical father's are close together in second place while young people having father's that do not work have the lowest positive attitude of all the groups. The One-Way ANOVA test suggests that this difference is significant and is not attributed to chance since the p-value (approximately 0.003) is less than the 0.05 level of significance. This implies that there is a strong relation between father's work and the total attitude score of young people.

- Knowledge, Attitude and Behaviour

The mean total knowledge scores, the mean total attitude scores and the mean total behaviour scores of young people where combined together to statistically verify whether there is a relation between the three attributes. The Pearson Correlation test suggests that there is a statistically significant relation between the total knowledge score and the total attitude score since the p-value (approximately 0.01) is less than the 0.05 level of significance, that there is no relation between the total knowledge score and total behaviour since the p-value (approximately 0.35) is greater than the 0.05 level of significance, and that there is a statistically significant relation between the total attitude score and the total behaviour score since the p-value (approximately 0.00) is less than the 0.05 level of significance.

Conclusion

Informed through the findings of the present quantitative research, a model of pro-environmental behaviour is being proposed (See Figure 1). It has to be understood that this model is not being proposed as a universal model but as a localised model on a particular cohort of people that is: Maltese youth aged between 15 and 19. The design has also been influenced by other authors of pro environmental models especially Kollmuss & Agyeman (2002) who were themselves influenced by Fietkau & Kessel (1981). The model does not attribute a direct relationship between environmental knowledge and pro-environmental behaviour. This is in line with Fietkau & Kessel (1981) and the Kollmuss & Agyeman (2002) models.

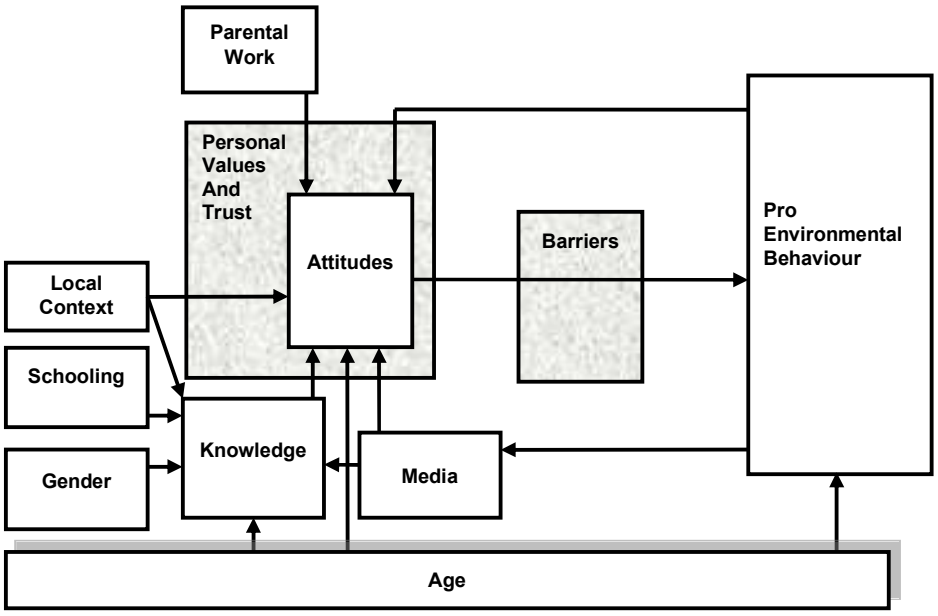

Figure 1: Pro-Environmental Behaviour Model

All the main factors that were discovered to be statistically significant in the quantitative research have been incorporated into the model. In addition, in the pursuit of keeping the model as simple as possible, minor areas and other factors which this study identified as being of relative or minor importance were not integrated. In the model a number of factors have a direct influence on

environmental attitude (e.g. parental work, family), other factors have a direct influence on knowledge (e.g. gender and schooling) and one particular factor (age) has a direct influence on knowledge, attitudes and behaviour. Nonetheless, the effect of age will probably be much less significant in later years, although further studies are needed to illuminate this relation. Knowledge is seen to be mainly influenced by schooling, age, gender and media. The focus group data will further enhance the model especially in identifying the various barriers that exist between environmental attitudes and pro-environmental behaviour.

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